

10/14/48

26

252/500

WE CLAIM

1. An electroluminescent device comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.
2. Device according to claim 1, wherein said polymer or copolymer of a (3,4-dialkoxythiophene) is selected from the group consisting of: poly(3,4-methylenedioxythiophene), poly(3,4-methylenedioxythiophene) derivatives, poly(3,4-ethylenedioxythiophene), poly(3,4-ethylenedioxythiophene) derivatives, poly[3,4-(propylenedioxy)thiophene], poly[3,4-(propylenedioxy)thiophene] derivatives, poly(3,4-butylenedioxythiophene), poly(3,4-butylenedioxythiophene) derivatives and copolymers therewith.
3. Device according to claim 1, wherein at least one of two said electrodes further comprises a polyanion compound.
4. Device according to claim 3, wherein said polyanion compound is poly(styrene sulfonic acid).
5. Device according to claim 1, wherein a dielectric layer is inserted between said phosphor layer and said second conductive electrode.
6. A display comprising an electroluminescent device comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in

*Christopher
Griffiths
2/2/09*

which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.

- 5 7. A lamp comprising an electroluminescent device comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.
- 10
15
16 8. A process for producing an electroluminescent device, comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge, comprising the steps of: (i) coating a transparent or translucent support with a solution, a dispersion or a paste of a polymer or copolymer of a 3,4-dialkoxythiophene to produce said transparent or translucent first conductive layer; (ii) coating said first conductive layer with a layer comprising an electroluminescent phosphor; (iii) optionally coating said layer comprising an electroluminescent phosphor with a dielectric layer; and (iv) coating said dielectric layer if present, or said layer comprising the electroluminescent phosphor if no dielectric layer is present, with a solution, dispersion or paste comprising a polymer or copolymer of a 3,4-dialkoxythiophene to produce said second conductive layer, wherein said polymer or copolymer of said 3,4-dialkoxythiophene in the solution, dispersion or paste used in step (i) may be the same or different from said polymer or

copolymer of said 3,4-dialkoxythiophene used in the solution, dispersion or paste used in step (iv).

9. Process according to claim 8, wherein said paste is an aqueous paste.
10. Process according to claim 8, wherein said transparent solution or dispersion is an aqueous solution or dispersion.
11. A process for producing an electroluminescent device, comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge, comprising the steps of: (i) coating a support with a solution, dispersion or paste comprising a polymer or copolymer of a (3,4-dialkoxythiophene) to produce said second conductive layer; (ii) optionally coating said second conductive layer with a dielectric layer; (iii) coating said dielectric layer if present, or said second conductive layer if no dielectric layer is present, with a layer comprising an electroluminescent phosphor; and (iv) coating said layer comprising said electroluminescent phosphor with a transparent solution, dispersion or paste comprising a polymer or copolymer of a (3,4-dialkoxythiophene) to produce said transparent or translucent first conductive layer, wherein said polymer or copolymer of a (3,4-dialkoxythiophene) in said solution, dispersion or paste used in step (i) may be the same or different from said polymer or copolymer of a (3,4-dialkoxythiophene) used in said transparent solution, dispersion or paste used in step (iv).
12. Process according to claim 11, wherein said paste is an aqueous paste.

13. Process according to claim 11, wherein said transparent paste is an aqueous transparent paste.
14. A process comprising the steps of: using a transparent paste comprising a polymer or copolymer of a 3,4-dialkoxythiophene, a polyacrylate thickener and a glycol derivative, and optionally a surfactant for producing an electrode of an electroluminescent device comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.
15. A process comprising the steps of: using an electroluminescent device, comprising a transparent or translucent support, a transparent or translucent first electrode, a second conductive electrode and an electroluminescent phosphor layer sandwiched between said transparent or translucent first electrode and said second conductive electrode, wherein said first and second electrodes each comprises a polymer or copolymer of a 3,4-dialkoxythiophene, which may be the same or different, in which said two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge, in illuminated posters and signage.